

**Date :** September 05, 2019

**CERTIFICATE OF ANALYSIS – GC PROFILING**

**SAMPLE IDENTIFICATION**

**Internal code :** 19H22-BLU01-1-SCC

**Customer identification :** Croton Eluteria - Bahamas - CE-001

**Type :** Essential oil

**Source :** *Croton eluteria*

**Customer :** Blue Ridge Aromatics

**ANALYSIS**

**Method:** PC-PA-014 - Analysis of the composition of an essential oil, or other volatile liquid, by FAST GC-FID (in French); identifications validated by GC-MS.

**Analyst :** Sylvain Mercier, M. Sc., Chimiste

**Analysis date :** August 27, 2019

Checked and approved by :

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Alexis St-Gelais, M. Sc., chimiste 2013-174

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*PHYSICOCHEMICAL DATA*

**Physical aspect:** Yellow liquid

**Refractive index:**  $1.4885 \pm 0.0003$  (20 °C)

*CONCLUSION*

This sample contains butylated hydroxyanisole which is a synthetic preservative considered as a potential carcinogenic agent. We recommend to discard this batch.

## ANALYSIS SUMMARY – CONSOLIDATED CONTENTS

New readers of similar reports are encouraged to read table footnotes at least once.

Identification	%	Classe
Isovaleral	tr	Aliphatic aldehyde
2-Methylbutyral	tr	Aliphatic aldehyde
1-Methylpyrrole	0.01	Pyrrole
Cyclohexadiene isomer?	0.01	Alkene
Hexanal	tr	Aliphatic aldehyde
Dimethylcyclopentanol isomer I?	tr	Aliphatic alcohol
Unknown	0.01	Unknown
Unknown	0.01	Normonoterpene
Dimethylcyclopentanol isomer II?	0.01	Aliphatic alcohol
2-Heptanone	tr	Aliphatic ketone
2-Heptanol	0.05	Aliphatic alcohol
Tricyclene	0.07	Monoterpene
$\alpha$ -Thujene	5.21	Monoterpene
$\alpha$ -Pinene	3.70	Monoterpene
Unknown	0.05	Monoterpene
Camphene	0.86	Monoterpene
Thuja-2,4(10)-diene	0.02	Monoterpene
6-Methyl-2-hepten-4-one?	0.01	Aliphatic ketone
Sabinene	0.27	Monoterpene
$\beta$ -Pinene	0.90	Monoterpene
6-Methyl-5-hepten-2-one	0.02	Aliphatic ketone
2-Carene	0.01	Monoterpene
Myrcene	4.64	Monoterpene
$\alpha$ -Phellandrene	0.59	Monoterpene
$\Delta^3$ -Carene	0.23	Monoterpene
ortho-Methylanisole	0.05	Simple phenolic
$\alpha$ -Terpinene	0.91	Monoterpene
para-Cymene	14.09	Monoterpene
Limonene	2.49	Monoterpene
1,8-Cineole	1.67	Monoterpenic ether
(Z)- $\beta$ -Ocimene	0.02	Monoterpene
(E)- $\beta$ -Ocimene	0.06	Monoterpene
$\gamma$ -Terpinene	1.91	Monoterpene
cis-Sabinene hydrate	0.05	Monoterpenic alcohol
cis-Linalool oxide (fur.)	0.04	Monoterpenic alcohol
Terpinolene	0.32	Monoterpene
para-Cymenene	0.02	Monoterpene
2-Nonanone	0.04	Aliphatic ketone
trans-Sabinene hydrate	0.05	Monoterpenic alcohol
Linalool	3.80	Monoterpenic alcohol
Perillene	0.07	Monoterpenic ether
2-Nonanol	0.35	Aliphatic alcohol
1,3,8-para-Menthatriene	0.07	Monoterpene
$\beta$ -Thujone	0.05	Monoterpenic ketone
cis-para-Menth-2-en-1-ol	0.06	Monoterpenic alcohol
Cosmene isomer I	0.10	Monoterpene
trans-Pinocarveol	0.03	Monoterpenic alcohol

<i>trans</i> -para-Menth-2-en-1-ol	0.03	Monoterpenic alcohol
Camphor	0.02	Monoterpenic ketone
Camphene hydrate	0.03	Monoterpenic alcohol
<i>trans</i> -Verbenol	0.01	Monoterpenic alcohol
Isoborneol	0.01	Monoterpenic alcohol
Methyl 7-methyloctanoate?	0.02	Aliphatic ester
<i>cis</i> -Chrysanthenol	1.63*	Monoterpenic alcohol
Borneol	[1.63]*	Monoterpenic alcohol
Unknown	0.01	Oxygenated monoterpene
Umbellulone	0.06	Monoterpenic ketone
Unknown	0.02	Oxygenated monoterpene
Terpinen-4-ol	1.94	Monoterpenic alcohol
para-Cymen-8-ol	0.09	Monoterpenic alcohol
<i>cis</i> -Piperitol	0.68*	Monoterpenic alcohol
$\alpha$ -Terpineol	[0.68]*	Monoterpenic alcohol
Unknown	tr	Unknown
Myrtenol	0.13	Monoterpenic alcohol
$\alpha$ -Phellandrene epoxide	0.09	Monoterpenic ether
<i>trans</i> -Piperitol	0.02	Monoterpenic alcohol
Unknown	0.08	Unknown
endo-Fenchyl acetate	0.01	Monoterpenic ester
Thymol methyl ether analog I	0.06	Monoterpenic ether
Unknown	0.09*	Unknown
Thymol methyl ether	0.08	Monoterpenic ether
2,5-Dimethoxytoluene	[0.09]*	Simple phenolic
Carvacrol methyl ether	0.09	Monoterpenic ether
Geraniol	0.05	Monoterpenic alcohol
Geranial	0.02	Monoterpenic aldehyde
(7Z)-Undecen-2-one	0.04	Aliphatic ketone
Unknown	0.05	Unknown
Unknown	0.09	Unknown
Thymol analogue I	0.12	Monoterpenic alcohol
Thymol	0.08	Monoterpenic alcohol
Thymol analogue II	0.02	Monoterpenic alcohol
Carvacrol	0.11	Monoterpenic alcohol
$\delta$ -Elemene	0.07	Sesquiterpene
$\alpha$ -Cubebene	0.13	Sesquiterpene
Unknown	0.06	Sesquiterpene
Eugenol	0.20	Phenylpropanoid
Cyclosativene I	0.84	Sesquiterpene
Cyclosativene II	0.15	Sesquiterpene
$\alpha$ -Ylangene	0.05	Sesquiterpene
2-epi- $\alpha$ -Funebrene	0.01	Sesquiterpene
$\alpha$ -Copaene	0.55	Sesquiterpene
Methyl undecanoate?	0.21	Aliphatic ester
$\beta$ -Bourbonene	0.03	Sesquiterpene
$\beta$ -Cubebene	0.09	Sesquiterpene
$\beta$ -Elemene	2.98	Sesquiterpene
Cyperene	0.07	Sesquiterpene
Unknown	0.40*	Sesquiterpene
$\alpha$ -Cedrene	[0.40]*	Sesquiterpene
$\alpha$ -Barbatene	0.37	Sesquiterpene

Cascarilladiene	5.83	Sesquiterpene
$\beta$ -Caryophyllene	2.17	Sesquiterpene
$\beta$ -Cedrene	0.72	Sesquiterpene
<i>cis</i> -Thujopsene	0.38	Sesquiterpene
Unknown	1.74	Sesquiterpene
$\beta$ -Copaene	0.36	Sesquiterpene
$\alpha$ -Guaiene	0.19*	Sesquiterpene
Aromadendrene	[0.19]*	Sesquiterpene
$\beta$ -Barbatene	0.03	Sesquiterpene
$\alpha$ -Humulene	1.66	Sesquiterpene
Geranylacetone	1.14	Monoterpenic ketone
allo-Aromadendrene	0.22	Sesquiterpene
Unknown	0.25	Sesquiterpene
<i>trans</i> -Cadina-1(6),4-diene	0.10	Sesquiterpene
Unknown	0.45	Sesquiterpene
$\gamma$ -Murolene	3.25*	Sesquiterpene
ar-Curcumene	0.02	Sesquiterpene
Germacrene D	[3.25]*	Sesquiterpene
Unknown	[3.25]*	Sesquiterpene
$\beta$ -Selinene	0.40	Sesquiterpene
$\delta$ -Selinene	1.14*	Sesquiterpene
Valencene	[1.14]*	Sesquiterpene
epi-Cubebol	0.09	Sesquiterpenic alcohol
Butylated hydroxyanisole	0.39	Synthetic
$\alpha$ -Selinene	0.05	Sesquiterpene
Bicyclogermacrene	0.28	Sesquiterpene
$\beta$ -Himachalene	0.30	Sesquiterpene
$\alpha$ -Murolene	0.40	Sesquiterpene
Cuparene	0.32	Sesquiterpene
Unknown	0.16	Sesquiterpene
$\alpha$ -Alaskene	0.26	Sesquiterpene
$\beta$ -Curcumene	0.05	Sesquiterpene
Cubebol	0.30	Sesquiterpenic alcohol
(3 <i>E</i> ,6 <i>E</i> )- $\alpha$ -Farnesene	0.09	Sesquiterpene
$\gamma$ -Cadinene	0.22	Sesquiterpene
7-epi- $\alpha$ -Selinene	0.11	Sesquiterpene
$\delta$ -Cadinene	0.92*	Sesquiterpene
<i>trans</i> -Calamenene	0.08	Sesquiterpene
$\beta$ -Sesquiphellandrene	[0.92]*	Sesquiterpene
Kessane	[0.92]*	Sesquiterpenic ether
10-epi-Cubebol?	0.11	Sesquiterpenic alcohol
<i>cis</i> -Calamenene?	0.32	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	0.15	Sesquiterpene
Unknown	0.08	Oxygenated sesquiterpene
$\alpha$ -Cadinene	0.05	Sesquiterpene
$\alpha$ -Calacorene	0.96	Sesquiterpene
$\alpha$ -Elemol	0.43	Sesquiterpenic alcohol
Salviadienol?	0.23	Sesquiterpenic alcohol
<i>cis</i> -Sesquisabinene hydrate	0.06	Sesquiterpenic alcohol
Eudesma-5,7(11)-diene	0.18	Sesquiterpene
Elemicin	0.41	Phenylpropanoid
$\beta$ -Calacorene	0.45	Sesquiterpene

Spathulenol	1.08	Sesquiterpenic alcohol
Caryophyllene oxide	1.09	Sesquiterpenic ether
Caryophyllene oxide isomer	0.04	Sesquiterpenic ether
10-epi-Junenol	0.33	Sesquiterpenic alcohol
Unknown	0.32	Oxygenated sesquiterpene
Salvial-4(14)-en-1-one	0.25	Aliphatic alcohol
Humulene epoxide II	0.42	Sesquiterpenic ether
Torilenol	0.47	Oxygenated sesquiterpene
Unknown	0.12	Sesquiterpene
Selin-6-en-4 $\alpha$ -ol isomer	0.62	Sesquiterpenic alcohol
$\alpha$ -Corocalene	0.05	Sesquiterpene
Longipinocarveol isomer?	0.89	Sesquiterpenic alcohol
Unknown	0.39	Oxygenated sesquiterpene
Isospathulenol	0.15	Sesquiterpenic alcohol
$\tau$ -Cadinol	0.14	Sesquiterpenic alcohol
$\tau$ -Muurolol	0.33	Sesquiterpenic alcohol
Cubenol	0.06	Sesquiterpenic alcohol
$\alpha$ -Muurolol	0.87	Sesquiterpenic alcohol
Unknown	0.52	Oxygenated sesquiterpene
Unknown	0.45*	Oxygenated sesquiterpene
Unknown	[0.45]*	Oxygenated sesquiterpene
Neointermedeol	0.78	Sesquiterpenic alcohol
<i>cis</i> -Calamene-10-ol	0.12	Sesquiterpenic alcohol
$\alpha$ -Cadinol	0.16	Sesquiterpenic alcohol
<i>trans</i> -Calamene-10-ol	0.17	Sesquiterpenic alcohol
Unknown	0.21	Oxygenated sesquiterpene
(3 <i>Z</i> )-Caryophylla-3,8(13)-dien-5 $\beta$ -ol	0.46	Sesquiterpenic alcohol
Cadalene	0.69	Sesquiterpene
Eudesma-4(15),7-dien-1 $\beta$ -ol	0.41	Sesquiterpenic alcohol
Unknown	0.15	Lignan
Unknown	0.19	Oxygenated sesquiterpene
Unknown	0.20	Oxygenated sesquiterpene
Unknown	0.25	Sesquiterpenic alcohol
Unknown	0.13	Oxygenated sesquiterpene
Unknown	0.28	Unknown
$\alpha$ -Cuparenol	0.24	Sesquiterpenic alcohol
meta-Camphorene	0.07	Diterpene
para-Camphorene	0.07	Diterpene
Unknown	0.19	Unknown
$\beta$ -Oplophenone?	0.46	Sesquiterpenic ketone
Undecylenic acid?	0.84	Aliphatic acid
<b>Consolidated total</b>	<b>97.07%</b>	

\*: Individual compounds concentration could not be found due to overlapping coelutions on columns considered

[xx]: Duplicate percentage due to coelutions, not taken into account in the consolidated total

tr: The compound has been detected below 0.005% of total signal.

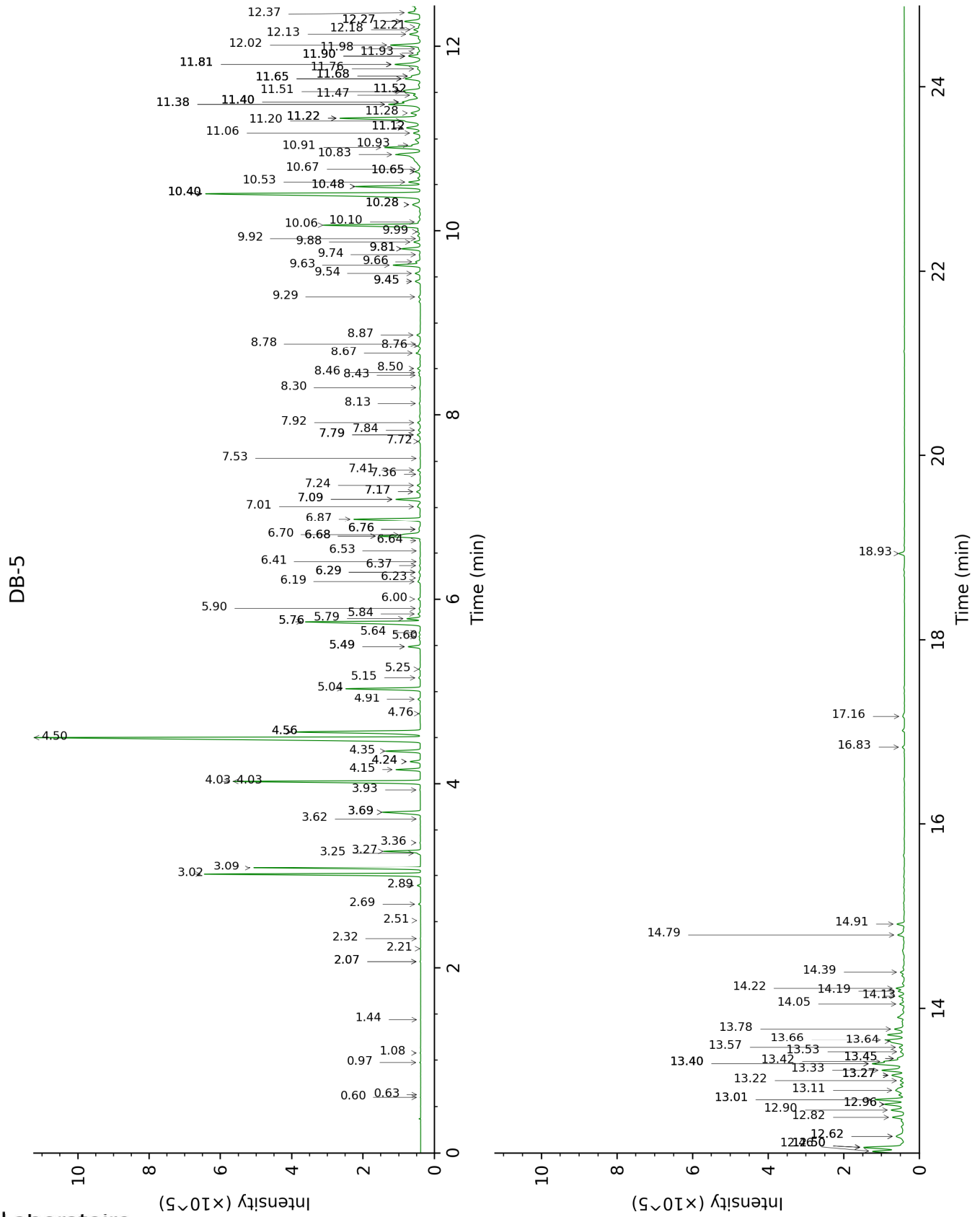
Note: no correction factor was applied

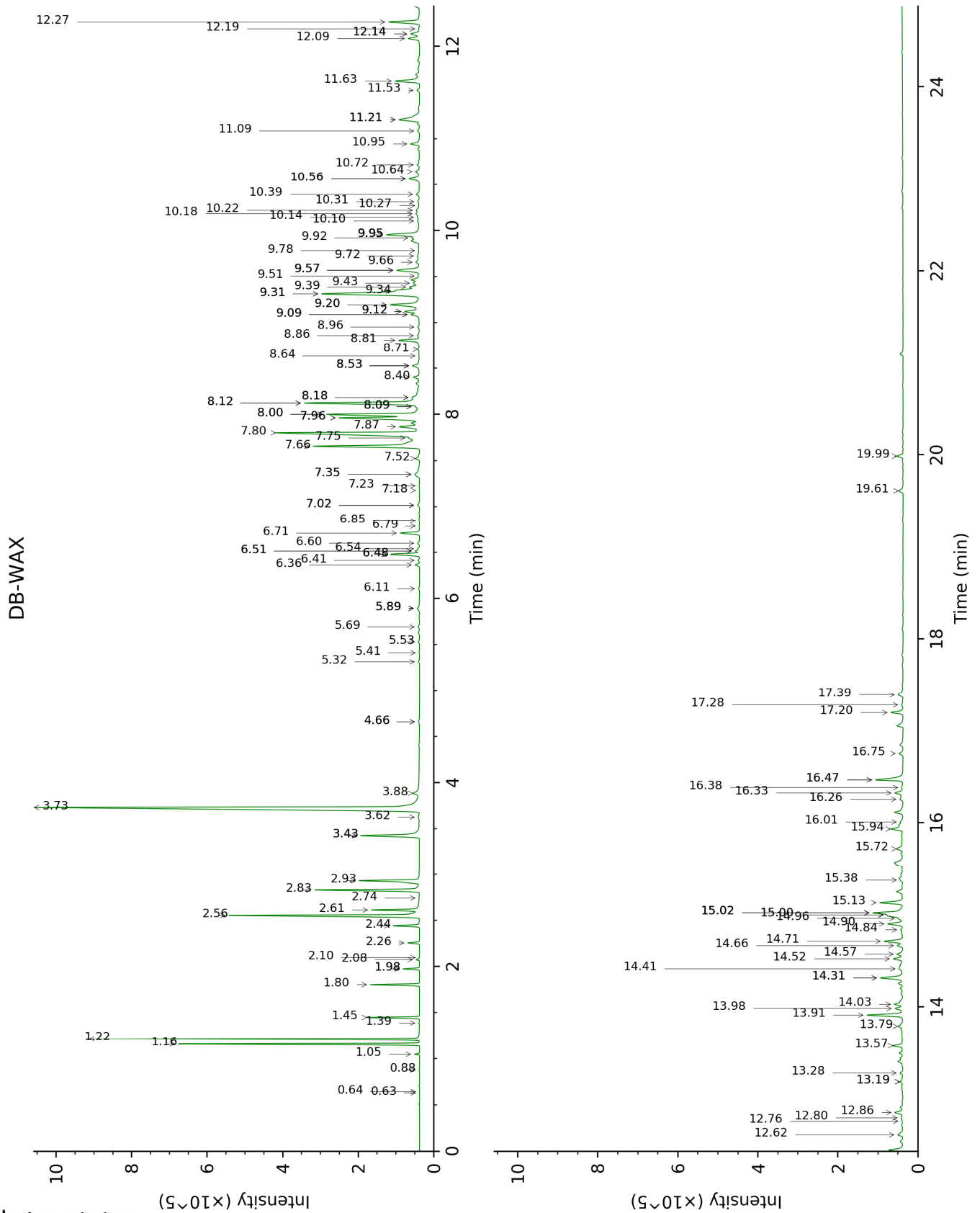
**About "consolidated" data:** The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm is set to prioritize data from the most standard DB-5 column, and smallest values so as to avoid overestimating individual content. This process is semi-automatic. Advanced users are invited to consult the "Full analysis data" table after the chromatograms in this report to access the full untreated data and perform their own calculations if needed.

**Unknowns:** Unknown compounds' mass spectral data is presented in the "Full analysis data" table. The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion.

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FULL ANALYSIS DATA

Identification	Column DB-5			Column DB-WAX		
	R.T	R.I	%	R.T	R.I	%
Isovaleral	0.60	639	tr	0.64	886	tr
2-Methylbutyral	0.63	650	tr	0.63	880	tr
1-Methylpyrrole	0.97	736	0.01			
Cyclohexadiene isomer?	1.08	750	0.01			
Hexanal	1.44	800	tr			
Dimethylcyclopentanol isomer I?	2.07*	854	0.01			
Unknown [m/z 109, 43 (28), 124 (28), 41 (14), 55 (11), 79 (9), 81 (8)...]	2.07*	854	[0.01]	1.39	1021	0.01
Unknown [m/z 79, 107 (63), 93 (46), 91 (42), 94 (34), 77 (27), 80 (18)... 122 (14)]	2.21	865	0.01	0.88	940	0.01
Dimethylcyclopentanol isomer II?	2.32	874	0.01			
2-Heptanone	2.51	890	tr	2.74	1149	0.02
2-Heptanol	2.69	905	0.05	4.66*	1298	0.05
Tricyclene	2.89	918	0.07	1.05	970	0.07
$\alpha$ -Thujene	3.02	926	5.21	1.22	1002	5.39
$\alpha$ -Pinene	3.09	930	3.70	1.16	991	3.83
Unknown [m/z 91, 92 (47), 65 (11)... 134 (1)]	3.25	941	0.05	2.08	1093	0.06
Camphene	3.27	942	0.86	1.45	1027	0.86
Thuja-2,4(10)-diene	3.36	949	0.02	1.98*	1082	0.30
6-Methyl-2-hepten-4-one?	3.62	966	0.01			
Sabinene	3.69*	970	1.16	1.98*	1082	[0.30]
$\beta$ -Pinene	3.69*	970	[1.16]	1.80	1064	0.90
6-Methyl-5-hepten-2-one	3.93	986	0.02	4.66*	1298	[0.05]
2-Carene	4.03*	992	4.82	2.10	1095	0.01
Myrcene	4.03*	992	[4.82]	2.56	1134	4.64
$\alpha$ -Phellandrene	4.15	1001	0.59	2.44	1125	0.58
$\Delta^3$ -Carene	4.24*	1006	0.26	2.26	1110	0.23
ortho-Methylanisole	4.24*	1006	[0.26]	5.53	1358	0.05
$\alpha$ -Terpinene	4.35	1013	0.91	2.61	1139	1.13
para-Cymene	4.50	1022	14.09	3.73	1228	14.04
Limonene	4.56*	1026	4.10	2.83	1156	2.49
1,8-Cineole	4.56*	1026	[4.10]	2.93	1165	1.67
(Z)- $\beta$ -Ocimene	4.76	1039	0.02	3.43*	1205	1.89
(E)- $\beta$ -Ocimene	4.91	1049	0.06	3.62	1220	0.05
$\gamma$ -Terpinene	5.04	1056	1.91	3.43*	1205	[1.89]
cis-Sabinene hydrate	5.15	1064	0.05	6.54†	1432	[1.02]
cis-Linalool oxide (fur.)	5.25	1070	0.04	6.11	1400	0.04
Terpinolene	5.49*	1085	0.34	3.88	1240	0.32
para-Cymenene	5.49*	1085	[0.34]	5.89*	1384	0.12

2-Nonanone	5.60	1092	0.04	5.41	1349	0.02
<i>trans</i> -Sabinene hydrate	5.64	1094	0.05	7.52	1507	0.14
Linalool	5.76*	1102	3.79	7.66	1517	3.80
Perillene	5.76*	1102	[3.79]	5.69	1369	0.07
2-Nonanol	5.79	1104	0.35	7.35*	1494	0.35
1,3,8-para-Menthatriene	5.84	1107	0.07	5.32	1342	0.05
β-Thujone	5.90	1111	0.05	5.89*	1384	[0.12]
<i>cis</i> -para-Menth-2-en-1-ol	6.00	1118	0.06	7.75†	1524	5.89
Cosmene isomer I	6.19	1130	0.10	5.89*	1384	[0.12]
<i>trans</i> -Pinocarveol	6.23	1133	0.03	8.71	1600	0.07
<i>trans</i> -para-Menth-2-en-1-ol	6.29*	1137	0.06	8.53*	1586	0.33
Camphor	6.29*	1137	[0.06]	6.79	1451	0.02
Camphene hydrate	6.37	1141	0.03	8.09*	1551	0.10
<i>trans</i> -Verbenol	6.41	1144	0.01	9.09*	1631	0.30
Isoborneol	6.52	1152	0.01	8.96	1620	0.08
Methyl 7-methyloctanoate?	6.64	1159	0.02			
<i>cis</i> -Chrysanthenol	6.68*†	1162	1.64	9.95*	1702	1.35
Borneol	6.68*†	1162	[1.64]	9.31*†	1650	4.61
Unknown [m/z 95, 110 (38), 81 (21), 79 (16)... 152 (7)]	6.70†	1163	[1.64]	7.18	1481	0.01
Umbellulone	6.76*	1167	0.08	8.53*	1586	[0.33]
Unknown [m/z 95, 110 (43), 81 (28), 41 (15)... 152 (8)]	6.76*	1167	[0.08]	7.23	1484	0.02
Terpinen-4-ol	6.87	1174	1.94	8.12*	1554	3.68
para-Cymen-8-ol	7.01	1183	0.09	11.08	1799	0.08
<i>cis</i> -Piperitol	7.09*	1188	0.68	9.12*	1634	0.52
α-Terpineol	7.09*	1188	[0.68]	9.34†	1652	[4.61]
Unknown [m/z 79, 107 (72), 41 (58), 55 (47), 77 (41), 67 (41)...]	7.17*	1194	0.13			
Myrtenol	7.17*	1194	[0.13]	10.39	1740	0.13
α-Phellandrene epoxide	7.24	1198	0.09	10.56*	1754	0.41
<i>trans</i> -Piperitol	7.36	1206	0.02	9.95*	1702	[1.35]
Unknown [m/z 109, 41 (42), 81 (39), 69 (32), 79 (25), 159 (23)... 174 (7)]	7.41	1209	0.08			
endo-Fenchyl acetate	7.53	1218	0.01	6.41	1423	0.05
Thymol methyl ether analog I	7.72	1230	0.06	7.96*†	1541	5.56
Unknown [m/z 93, 82 (84), 67 (73), 41 (47), 108 (42), 107 (36)...]	7.79*†	1235	0.17			
Thymol methyl ether	7.79*†	1235	[0.17]	8.09*	1551	[0.10]
2,5-Dimethoxytoluene	7.84†	1239	[0.17]			
Carvacrol methyl ether	7.92	1244	0.09	8.18*	1559	0.47

Geraniol	8.13	1259	0.05	11.21*†	1810	1.17
Geranial	8.30	1270	0.02	9.72	1683	0.11
(7Z)-Undecen-2-one	8.43	1280	0.04			
Unknown [m/z 79, 45 (64), 67 (63), 43 (48), 81 (47), 68 (41)...]	8.46	1282	0.05			
Unknown [m/z 45, 55 (63), 56 (53), 70 (50), 97 (43), 43 (42)...]	8.50	1285	0.09	9.66	1678	0.19
Thymol analogue I	8.67	1296	0.12	14.57	2125	0.25
Thymol	8.76	1302	0.08	14.66	2134	0.19
Thymol analogue II	8.78	1304	0.02	14.84	2152	0.09
Carvacrol	8.87	1305	0.11	14.90	2158	0.54
δ-Elemene	9.29	1334	0.07	6.51*†	1430	[1.02]
α-Cubebene	9.45*	1346	0.19	6.36	1419	0.13
Unknown [m/z 95, 147 (61), 96 (39), 93 (37), 94 (37)... 204 (4)]	9.45*	1346	[0.19]	6.48*†	1428	1.02
Eugenol	9.54	1352	0.20	14.32*	2100	0.83
Cyclosativene I	9.63	1359	0.84	6.48*†	1428	[1.02]
Cyclosativene II	9.66	1361	0.15	6.51*†	1430	[1.02]
α-Ylangene	9.74	1367	0.05	6.60	1437	0.08
2-epi-α-Funebrene	9.81*	1371	0.58	6.85	1456	0.01
α-Copaene	9.81*	1371	[0.58]	6.71	1445	0.55
Methyl undecanoate?	9.88	1376	0.21			
β-Bourbonene	9.92	1379	0.03	7.02*	1468	0.08
β-Cubebene	9.99	1384	0.09	7.35*	1494	[0.35]
β-Elemene	10.06	1389	2.98	8.00*†	1544	[5.56]
Cyperene	10.10	1392	0.07	7.02*	1468	[0.08]
Unknown [m/z 69, 93 (56), 111 (55), 55 (41), 92 (40), 91 (37)... 204 (t)]	10.28*	1405	0.40	10.14†	1718	0.25
α-Cedrene	10.28*	1405	[0.40]			
α-Barbatene	10.40*	1414	8.55	8.40	1576	0.37
Cascarilladiene	10.40*	1414	[8.55]	7.80†	1529	[5.89]
β-Caryophyllene	10.40*	1414	[8.55]	8.00*†	1544	[5.56]
β-Cedrene	10.40*	1414	[8.55]	7.87	1534	0.72
cis-Thujopsene	10.48*	1420	1.92	8.18*	1559	[0.47]
Unknown [m/z 119, 105 (71), 204 (16), 91 (15), 161 (13)...]	10.48*	1420	[1.92]	8.12*	1554	[3.68]
β-Copaene	10.53	1423	0.36	7.96*†	1541	[5.56]
α-Guaiene	10.65*	1432	0.19			
Aromadendrene	10.65*	1432	[0.19]			
β-Barbatene	10.67	1434	0.03	8.64	1594	0.02
α-Humulene	10.83	1446	1.66	8.81	1608	0.67
Geranylacetone	10.91	1452	1.14	11.21*†	1810	[1.17]
allo-Aromadendrene	10.93	1454	0.22	8.53*	1586	[0.33]
Unknown [m/z 161, 91 (57), 120 (46), 105 (42), 133 (25), 119 (22), 41	11.06	1464	0.25	9.09*	1631	[0.30]

(21), 204 (21)]						
<i>trans</i> -Cadina-1(6),4-diene	11.12*	1468	0.54	8.86	1612	0.10
Unknown [m/z 118, 69 (82), 91 (51), 117 (40)... 202 (25)]	11.12*	1468	[0.54]			
γ-Muurolene	11.20†	1473	3.28	9.20*	1640	1.25
α-Curcumene	11.22*†	1476	[3.28]	10.27	1729	0.02
Germacrene D	11.22*†	1476	[3.28]	9.31*†	1650	[4.61]
Unknown [m/z 189, 133 (75), 91 (71), 105 (69), 93 (44)... 204 (33)]	11.22*†	1476	[3.28]	9.12*	1634	[0.52]
β-Selinene	11.28	1480	0.40	9.39	1656	0.34
δ-Selinene	11.38*	1487	1.14	9.20*	1640	[1.25]
Valencene	11.38*	1487	[1.14]			
epi-Cubebol	11.40*	1488	0.80	11.53	1838	0.09
Butylated hydroxyanisole	11.40*	1488	[0.80]	17.20	2400	0.39
α-Selinene	11.40*	1488	[0.80]	9.51	1666	0.05
Bicyclgermacrene	11.40*	1488	[0.80]	9.57*	1670	0.94
β-Himachalene	11.47	1494	0.30	9.43	1659	0.24
α-Muurolene	11.51	1497	0.40	9.57*	1670	[0.94]
Cuparene	11.52*	1498	0.48	10.56*	1754	[0.41]
Unknown [m/z 93, 105 (63), 119 (60), 91 (58), 107 (55), 41 (51), 69 (44), 79 (44), 202 (43)]	11.52*	1498	[0.48]			
α-Alaskene	11.65*	1508	0.60	9.57*	1670	[0.94]
β-Curcumene	11.65*	1508	[0.60]	9.78	1688	0.05
Cubebol	11.65*	1508	[0.60]	12.14*	1893	0.35
(3E,6E)-α-Farnesene	11.68*	1510	0.28	10.10	1715	0.09
γ-Cadinene	11.68*	1510	[0.28]	9.92	1699	0.22
7-epi-α-Selinene	11.76	1516	0.11	9.95*	1702	[1.35]
δ-Cadinene	11.81*	1520	1.00	9.95*	1702	[1.35]
<i>trans</i> -Calamenene	11.81*	1520	[1.00]	10.72	1768	0.08
β-Sesquiphellandrene	11.81*	1520	[1.00]	10.18†	1722	[0.25]
Kessane	11.81*	1520	[1.00]	9.95*	1702	[1.35]
10-epi-Cubebol?	11.90*†	1527	0.50	13.28	1999	0.11
<i>cis</i> -Calamenene?	11.90*†	1527	[0.50]	10.94	1787	0.32
<i>trans</i> -Cadina-1,4-diene	11.90*†	1527	[0.50]	10.22	1725	0.15
Unknown [m/z 177, 159 (67), 41 (43), 91 (43), 43 (41)... 220 (t)]	11.93†	1529	[0.50]	12.80	1954	0.08
α-Cadinene	11.98	1533	0.05	10.31	1733	0.08
α-Calacorene	12.02	1536	0.96	11.63	1847	0.91
α-Elemol	12.13	1546	0.43	13.57	2028	0.30
Salviadienol?	12.18	1549	0.23	13.79	2049	0.24
<i>cis</i> -Sesquisabinene hydrate	12.21	1552	0.06	12.76	1951	0.04
Eudesma-5,7(11)-diene	12.27*	1556	0.59	10.64	1761	0.18
Elemicin	12.27*	1556	[0.59]	15.00*†	2168	1.70
β-Calacorene	12.37	1564	0.45	12.09	1889	0.39

Spathulenol	12.46	1571	1.08	13.91	2060	1.12
Caryophyllene oxide	12.50*	1574	1.47	12.26	1905	1.09
Caryophyllene oxide isomer	12.50*	1574	[1.47]	12.19	1898	0.04
10-epi-Junenol	12.50*	1574	[1.47]	12.14*	1893	[0.35]
Unknown [m/z 109, 43 (95), 81 (81), 93 (76), 69 (75), 95 (74), 107 (71)... 204 (22), 220 (6)]	12.62*	1584	0.57			
Salvial-4(14)-en-1-one	12.62*	1584	[0.57]	12.62	1937	0.25
Humulene epoxide II	12.82	1600	0.42	12.86	1960	0.31
Torilenol	12.90	1606	0.47	15.02*†	2170	[1.70]
Unknown [m/z 187, 202 (86), 145 (25), 131 (19), 105 (16), 188 (15)]	12.96*	1611	0.74			
Selin-6-en-4 $\alpha$ -ol isomer	12.96*	1611	[0.74]	14.32*	2100	[0.83]
$\alpha$ -Corocalene	13.01*	1615	0.94	13.19*	1990	0.11
Longipinocarveol isomer?	13.01*	1615	[0.94]			
Unknown [m/z 161, 59 (59), 81 (50), 204 (49), 93 (36), 189 (34)... 220 (t)]	13.11	1623	0.39	13.98	2067	0.29
Isospathulenol	13.22	1632	0.15	15.02*†	2170	[1.70]
$\tau$ -Cadinol	13.27*	1637	0.53	14.41	2109	0.14
$\tau$ -Muurolol	13.27*	1637	[0.53]	14.52	2120	0.33
Cubenol	13.27*	1637	[0.53]	13.19*	1990	[0.11]
$\alpha$ -Muurolol	13.33	1641	0.87	14.71	2139	0.67
Unknown [m/z 43, 81 (84), 41 (64), 67 (62), 95 (58), 79 (58)... 204 (48), 220 (2)]	13.40*†	1647	1.76	15.00*†	2168	[1.70]
Unknown [m/z 95, 121 (90), 81 (65), 91 (64), 93 (62), 43 (59)... 220 (11)]	13.40*†	1647	[1.76]			
Unknown [m/z 43, 81 (79), 93 (77), 91 (70), 161 (68), 107 (67), 95 (65)...]	13.40*†	1647	[1.76]			
Neointermedeol	13.42†	1649	[1.76]	15.13	2181	0.78
<i>cis</i> -Calamenen-10-ol	13.45*	1652	0.27	16.01	2273	0.12
$\alpha$ -Cadinol	13.45*	1652	[0.27]	15.02*†	2170	[1.70]
<i>trans</i> -Calamenen-10-ol	13.53	1658	0.17	16.38	2312	0.08
Unknown [m/z 205, 93 (93), 43 (58), 79 (510), 91 (48), 119 (45)... 220 (3)]	13.57	1662	0.21	15.72	2242	0.32
(3 <i>Z</i> )-Caryophylla-3,8(13)-dien-5 $\beta$ -ol	13.64	1667	0.46	16.33	2306	0.31
Cadalene	13.66	1668	0.69			
Eudesma-4(15),7-dien-1 $\beta$ -ol	13.78	1678	0.41			

Unknown [m/z 133, 93 (97), 131 (85), 145 (83), 107 (69)...220]	14.05	1701	0.15	16.47*	2321	1.00
Unknown [m/z 93, 81 (90), 95 (86), 91 (83), 41 (83), 107 (81)... 220 (29), 238? (4)]	14.13	1708	0.19	16.75	2352	0.16
Unknown [m/z 159, 93 (87), 105 (84), 91 (81), 107 (71), 131 (69), 79 (65), 119 (63), 145 (62), 41 (61), 220 (61)]	14.19	1713	0.20	16.26	2299	0.11
Unknown [m/z 118, 69 (66), 159 (66), 202 (61), 132 (52)...220 (10)]	14.22	1715	0.25	14.03	2072	0.30
Unknown [m/z 43, 203 (78), 185 (48), 159 (29), 200 (29), 218 (18)...]	14.39	1731	0.13	17.28	2410	0.07
Unknown [m/z 152, 137 (60), 124 (51), 109 (39), 41 (37)...]	14.80	1766	0.28	17.39	2422	0.26
$\alpha$ -Cuparenol	14.91	1776	0.24	19.99	2726	0.22
meta-Camphorene	16.83	1951	0.07	14.96	2164	0.11
para-Camphorene	17.16	1982	0.07	15.38	2206	0.06
Unknown [m/z 69, 95 (52), 81 (49), 119 (48), 121 (43)...]	18.93	2159	0.19	19.61	2680	0.19
$\beta$ -Oplophenone?				15.94	2265	0.46
Undecylenic acid?				16.47*	2321	[1.00]
<b>Total identified</b>		<b>92.35%</b>			<b>89.45%</b>	
<b>Total reported</b>		<b>94.86%</b>			<b>91.78%</b>	

\*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, not taken into account in the consolidated total

†: Peaks apexes were resolved, but peaks overlapped and were summed for analysis

tr: The compound has been detected below 0.005% of total signal.

Note: no correction factor was applied  
R.T.: Retention time (minutes)  
R.I.: Retention index